

SHALLOW BLACK CLAY OVER CALCRETE

General Description: *Well structured black clay becoming more clayey with depth over calcrete at shallow depth*

Landform: Low lying salinized plain with extensive swamps

Substrate: Calcreted limestone (Bungunnia Limestone equivalent).

Vegetation: Salt tolerant grasses and samphire.



Type Site:	Site No.:	MM115	1:50,000 mapsheet:	6827-3 (Moorlands)
	Hundred:	Coolinong	Easting:	365400
	Section:	56	Northing:	6080850
	Sampling date:	31/03/1993	Annual rainfall:	385 mm average

Flat with a seasonally cracking surface.

Soil Description:

Depth (cm)	Description
0-11	Black hard silty clay with moderate coarse granular structure. Abrupt to:
11-25	Very dark grey hard medium heavy clay with strong coarse angular blocky structure. Sharp to:
25-60	Laminar calcrete. Clear to:
60-85	Massive calcrete. Diffuse to:
85-130	Semi hard carbonate with 20-50% hard nodules. Diffuse to:
130-162	Pale yellow very highly calcareous firm massive sandy clay loam with 10-20% calcareous nodules.
162-	Watertable. Salinity is 16,000 mg/l.



Classification: Petrocalcic, Epipedal, Black Vertosol; non-gravelly, fine / medium fine, shallow



Summary of Properties

- Drainage:** Moderately well drained. Soil rarely remains saturated for more than a week.
- Fertility:** Inherent fertility is high, as indicated by the exchangeable cation data. Regular phosphorus applications are essential. Nitrogen content depends on legume status of pastures. Occasional zinc and copper deficiencies can be expected. Organic carbon levels are high.
- pH:** Slightly acidic at the surface, alkaline with depth.
- Rooting depth:** 25 cm in pit.
- Barriers to root growth:**
- Physical:** The calcrete and limestone limit root penetration.
 - Chemical:** No barriers above the calcrete, but high salinity and fluctuating watertables affect any root growth that does occur into the calcrete and limestone.
- Waterholding capacity:** 35 mm in rootzone.
- Seedling emergence:** Moderate limitation due to hard, sealing surface soil.
- Workability:** Hard setting and sealing surface restricts moisture range for effective and safe working. Stones may interfere with cultivation in places.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.1	5.5	<1	0.20	1.82	2.2	30	890	3.4	1.7	60	67	0.76	21.8	11.95	4.19	0.44	2.77	2.0
0-11	6.0	5.2	<1	0.11	1.04	1.9	16	680	2.8	1.4	25	59	0.49	16.7	8.05	3.40	0.33	1.97	2.0
11-25	7.6	7.0	<1	0.19	1.25	0.8	5	1200	8.5	2.1	-	13	<0.06	36.3	15.49	12.02	1.79	4.01	4.9
25-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85-130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130-162	8.9	8.3	42	1.26	12.15	<1	3	640	9.1	0.24	8.9	1.3	0.10	11.9	4.03	5.10	2.82	1.53	23.7

- Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.
CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.
ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.

Further information: [DEWNR Soil and Land Program](#)

